Name: Abby Simons Date: 7/19/20

Lesson Title: Coordinate Plane Unit Title: Week 5

Grade Level: 7th

Objectives:

* Students will be able to restate the story of the Crown of King Hieron
* Students will be able to reproduce the Cartesian plane
* Students will be able to identify the pieces of the Cartesian plane
* Students will be able to plot and label points on the Cartesian plane

Set Induction:

* Take attendance
* Hand back any papers
* Have students take out their homework logs and fill in tonight’s homework. I will come around and sign them.
* Review Cartesian plane from Friday. Hand out a piece of graph paper to each student. Have students draw their own coordinate plane on the graph paper. Tell them to label both x and y axis, the origin, and the four quadrants. Go around and check each sheet when done to make sure the students know how to properly make and label a coordinate plane
* (5 min)

Content Outline and Learning Activities:

* Mathematical Topic of the Week – the story of Archimedes and the Crown of King Hieron.
  + Background information on Archimedes
    - Born around 287 BC in Syracuse, Sicily. Mathematician. Studied in Alexandria Egypt.
    - How he died.. during the Second Punic War when the Romans under General Marcus Claudius Marcellus captured Syracuse. A soldier came to Archimedes and told him to come with him to meet the General. Archimedes refused because he was working on some kind of mathematical diagram. The soldier got mad that Archimedes was not obeying his orders and killed him. The General wanted Archimedes alive, so was angered by this.
  + Used his principle of buoyancy to uncover a fraud against King Hieron of Syracuse. The king had a crown that was supposedly made of solid gold. The king thought that the crown was not made of solid gold, so he got Archimedes to figure out if it was made of solid gold or not. So Archimedes took two equal weights of gold and silver and compared their weights when put in water. Then he compared the weights of the crown and a pure silver crown of identical dimensions when each was immersed in water. The difference between these comparisons showed that the crown was not made of pure solid gold. Used ratios to uncover this.
  + (7 min)
* First discuss the importance of the Coordinate plane. Why we study it, how we can use it in real life.
  + Ask students for ideas on the importance. Ask if they see the coordinate plane in real life.
  + My ideas – maps (based on a coordinate plane. Locating streets, places, etc). the game battleship.
  + Street Map Worksheet. (write in map on worksheet. Then can make copies)
    - Have students map many ways from traveling from the school to the house. They are to think of 3rd street as the x axis and evergreen street as the y axes. (with their intersection being the origin). They cannot travel through quadrant one because it is a construction zone, so they must go around. Many possible routes. Purpose – to have the students understand the grid like system with intersections and different routes to get to the same place.
  + (8 min)
* Plotting points on the coordinate plane…
  + Students will record notes in their notebooks
  + When you want to find points on the coordinate plane, you need two pieces of information to locate the point. You need to know how far over the point is in the x-direction, and how far up/down the point is in the y-direction (these distances are numbers that can be either positive or negative)
  + From this, you get the ordered pair which looks like (x, y). replace the x, y with the numbers in both of those directions
  + The ordered pair defines where the point lies.
  + The first number in the ordered pair is the x coordinate. It describes the number of units to the left or right of the origin. The second number in the ordered pair is the y coordinate. It describes the number of units above or below the origin. To plot a point, start at the origin and count along the x axis until you reach the x coordinate, count right for positive numbers, left for negative. Then count up or down the number of the y coordinate (up for positive, down for negative.)
  + Remember, we are naming points based off of intersecting lines!
  + \*\* handout graph paper. Have students first draw a coordinate plane on a sheet of graph paper. Then we will locate points on the grid. Stress importance of x direction first, then y direction. Have students also identify what quadrant they are in
    - (3, 4)
    - (4, 3)
    - (-3, 4)
    - (4, -3)
    - (3, -4)
    - (-4, 3)
    - (-4, -3)
    - (-3, -4)
  + (15 min)
* Have students make a generalization about the signs that the points will have in each quadrant
  + Look at the numbers from the practice above. Look at what quadrant they are in. have students make a list of the points that are in which quadrant. Then ask the students if they see any trends in the signs (positive and negative signs)
  + I – (+, +)
  + II – (-, +)
  + III – (-, -)
  + IV – (+, -)
  + MAKE SURE TO GET TO THIS. IMPORTANT FOR THE STUDENTS TO RECOGNIZE THIS!
  + (5 min)

Closure:

* Hand out homework – Coordinate Plane practice due 7/20/10
* Draw a coordinate plane on the board. Have students raise hands and identify the pieces of the coordinate plane (x and y axes, four quadrants, origin). Label the following points – (1, 3), (3, 1), (2, -2), (2, -2). Have students explain why these points are different even though both pairs have similar numbers.
* (5 min)

Evaluation Procedure:

* Coordinate Plane practice homework due 7/20/10

Additional Notes:

* Street Map worksheet
* Graph paper
* Rulers
* Coordinate Plane Practice Homework
* Coordinate Plane Practice Homework Answers

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Street Map

Directions: Treat this map like a coordinate plane where the 3rd street is the x-axis and Evergreen street is the y-axis (their intersection is the origin). The goal is to find many routes traveling from the school to the house. You may only move horizontally and vertically and you may not travel in the construction zone. Outline all the possible routes!

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Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Due Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Coordinate Plane Practice

Directions: Label the following points on the coordinate plane in the order listed and connect the dots in that order.

First picture: (0,7) to (3,7); (0,6) to (3,6); (1,8) to (1,5); (2,8) to (2,5)

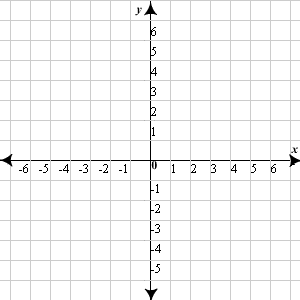
Second picture: (4,6) to (6,8); (6,8) to (6,1); (3,1) to (9,1)



The Picture is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and in Quadrant \_\_\_\_\_\_

Directions: Complete Questions 1-9.

1. If you are given the coordinates (-5,-3), which quadrant would the point be in?
2. Using the coordinates from question 1, in what directions would you move the point away from the origin? [hint: left or right, up or down]
3. If you are given the coordinates (2,-8), which quadrant would the point be in?
4. Using the coordinates from question 3, in what directions would you move the point away from the origin?
5. What are the signs of the coordinates in Quadrant I? [hint: think positive and negative]
6. What are the signs of the coordinates in Quadrant IV?
7. Is the coordinate (-2,3) the same as coordinate (3,-2)? If no, explain.
8. Is the coordinate (2,3) the same coordinate as (3,2)? If no, explain.
9. Plot the following points on a Coordinate Plane: (-3,-3), (1,1) and (4,4). After you plot these points, connect the dots. What do you create by connecting the points?



Name: Answer Key

Due Date: 7/20/10

More Coordinate Plane Practice (**write in answers**)

Directions: Label the following points on the coordinate plane in the order listed and connect the dots in that order.

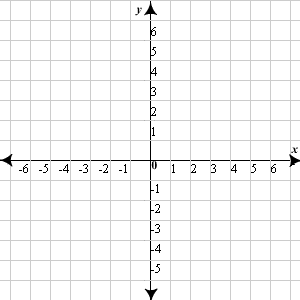
First picture: (0,7) to (3,7); (0,6) to (3,6); (1,8) to (1,5); (2,8) to (2,5)

Second picture: (4,6) to (6,8); (6,8) to (6,1); (3,1) to (9,1)



The Picture is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and in Quadrant \_\_\_\_\_\_

Directions: Complete Questions 1-9.

1. If you are given the coordinates (-5,-3), which quadrant would the point be in?
2. Using the coordinates from question 1, in what directions would you move the point away from the origin? [hint: left or right, up or down]
3. If you are given the coordinates (2,-8), which quadrant would the point be in?
4. Using the coordinates from question 3, in what directions would you move the point away from the origin?
5. What are the signs of the coordinates in Quadrant I? [hint: think positive and negative]
6. What are the signs of the coordinates in Quadrant IV?
7. Is the coordinate (-2,3) the same as coordinate (3,-2)? If no, explain.
8. Is the coordinate (2,3) the same coordinate as (3,2)? If no, explain.
9. Plot the following points on a Coordinate Plane: (-3,-3), (1,1) and (4,4). After you plot these points, connect the dots. What do you create by connecting the points?

Name: Abby Simons Date: 7/20/10

Lesson Title: Introduction to Equations Unit Title: Week 5

Grade Level: 7th

Objectives:

* Students will be able to state the definitions of equations and variables
* Students will be able to identify and solve a one-step equation

Set Induction:

* Take attendance
* Hand back any papers
* Students will take out their homework logs and fill in tonight’s homework. I will come around and check their homework
* Review the coordinate plane one last time. (I am having the students do this numerous times because some of the students know how to evaluate the coordinate plane when it is given to them. They do not know how to make their own). Each student will draw a coordinate plane on a sheet of paper. Both positive and negative x and y axes will be labeled. Origin (0,0) will be labeled. And the number lines will have positive and negative numbers up to 5 with arrows drawn on the end of both axes.
* (5 min)

Content Outline and Learning Activities:

* First we will review the homework from last night – Coordinate Plane Practice. When finished reviewing I will collect the homework. (10 min)
* Students will take notes on equations… (write definitions on board for students to copy)
  + Definition of an equation – a mathematical statement that has two expressions separated by an equal sign. The expressions on the left and right sides of the equals sign are equal. Sometimes equations have variables (a variable is an unknown that you are trying to solve for) that can be on either side of the equations. To solve for the variable, you must isolate it and bring it to one side by itself. When solving equations, you must keep each expression on either side equal, so if you manipulate one side of the equation, you must do the same thing to the other side.
  + Variable – something that can be anything…. a variable is ANYTHING!! Any letter, shape, picture, object, etc. stands for something else (usually what you are solving for).
  + (5 min)
* To show equivalence on both sides….
  + DEMONSTRATION! Show that 8 tbs and ½ cup of flour have the same quantity. We are using two different measuring tools (tbs and cup) which are our variables. If you adjust the quantity of each variable, you can see that they will be equal to eachother…show visually in a clear cup for both the tbs measurement and the cup measurement. Even though we used two different tools and made adjustments, we still have the same quantity. So, 8 tbs of flour is equal to ½ cup of flour, and both sides of the equation are equal to eachother.
  + (5 min)
* Do practice equations with the students at the board. Groups of three set around classroom at the boards. We will first solve equations using symbols as our variables.
  + Examples
    - 2• = 8 • = 4
    - 3 – 2 = • • = 1
    - 15 = • + 2 • = 13
    - • ÷ 4 = 8 • = 32
  + First have the students think about what number they would substitute into the dot to make the equation equal
    - First example.. what number times 2 equals 8?
    - 2nd .. 3 – 2 is equal to what number?
    - 3rd .. 15 is equal to what number plus 2?
    - 4th .. what number divided by 8 is equal to 32?
  + After seeing how to solve for the variables using mental math, now I will have the students do the same examples, but this time we will solve for the problems using the concept of inverse operations.
    - First – write definition of inverse operation on the board – an inverse operation is an operation that cancels out another. Like when we used pogs the first week, we are creating zeros in order to get the term with the variable by itself (you must first isolate the variable in order to solve for it)
      * Addition and subtraction are inverses
      * Division and multiplication are inverses
    - So let’s redo the examples by using this idea of isolating the variable through inverse operations.
      * 1st … divide by 2
      * 2nd … variable already isolated
      * 3rd … subtract 2
      * 4th … multiply by 8
    - As you can tell, we only did one step. Only used one operation to solve for our unknown variable. So… these equations that we are working with are called one-step equations.
  + (10 min)
* Solving 1-step equations worksheet. Students will do sections of the worksheet and then explain the steps and answers to the class. I will do the first question as an example on the board. (10 min)

Closure:

* Hand out homework for tonight – 1-step equations homework due 7/21/10
* Finish the solving 1-step equation worksheet and go over answers with class.

Evaluation Procedure:

* 1-step equations homework due 7/21/10

Additional Notes:

* Coordinate Plane practice homework answers from 7/19/10
* Solving 1-step equations worksheet
* Solving 1-step equations worksheet answers
* Flour, tbs, ½ cup, two plastic bags
* 1-step equations homework
* 1-step equations homework answer key

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Solving 1-Step Equations

Directions: Solve the following equations for the variable. Show all work.

1. 7x = 21
2. 8 + y = 10
3. f – 2 = 23
4. 6a = 24
5. e + 18 = -36
6. w ÷ 6 = 11
7. 8k = 36
8. q ÷ 5 = 10
9. 13t = 39
10. z – 9 = 13

Name: Answer Key

Date: 7/20/10

Solving 1-Step Equations

Directions: Solve the following equations for the variable. Show all work.

1. 7x = 21

X = 3

1. 8 + y = 10

Y = 2

1. f – 2 = 23

f = 25

1. 6a = 24

a = 4

1. e - 18 = -36

e = -18

1. w ÷ 6 = 11

w = 66

1. 8k = 36

k = 4

1. q ÷ 5 = 10

q = 50

1. 13t = 39

t = 3

1. z – 9 = 13

z = 22

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Due Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1-Step Equations Homework

1. Directions: Solve the following equations for the unknown variable! Show all work!
   1. -52 = k – 52
   2. 111 + f = 100
   3. 5y = 25
   4. w ÷8 = 64
   5. 7 + x = 60
2. Make your own equation and solve for your variable. Follow similar format of the problems we were solving today in class.
3. Explain in your own words the definitions of mathematical equations and variables.

Name: Answer Key

Due Date: 7/21/10

1-Step Equations Homework

1. Directions: Solve the following equations for the unknown variable! Show all work!
   1. -52 = k – 52

k = 0

* 1. 111 + f = 100

f = -1

* 1. 5y = 25

y = 5

* 1. w ÷8 = 64

w = 512

* 1. 7 + x = 60

x = 53

1. Make your own equation and solve for your variable. Follow similar format of the problems we were solving today in class.

See students answers

1. Explain in your own words the definitions of mathematical equations and variables.

See students answers

Name: Abby Simons Date: 7/21/10

Lesson Title: Equations Unit Title: Week 5

Grade Level: 7th

Objectives:

* Students will be able to solve 1-step equations
* Students will be able to solve 2-step equations

Set Induction:

* Take attendance
* Hand back any papers
* Have students take out homework logs and write in homework for tonight. I will come around and sign the logs
* Write the following equations on the board. Have students solve them in their notebooks as practice solving 1-step equations
  + 2 + x = 9 x = 7
  + 3 = 2 + w w = 1
  + 7 – 3 = p p = 4
  + 14 + q = 30 q = 16
* (5 min)

Content Outline and Learning Activities:

* Review homework from last night – 1-step equations homework. Collect homework when finished reviewing. (8 min)
* Review concepts learned yesterday about solving equations.
  + Both sides of the equal sides (the left and right expressions) are equal.
  + In order to keep both sides of the equation equal, you must do the same thing to both sides. For example if I wanted to multiply five to one side of an equation. I would have to multiply 5 to the other side as well. This keeps both sides of the equation equal. Tell the students to think of a balance. In order to keep both sides of the balance at the same height, you have to add the same amount or take away the same amount to both sides of the balance…. Situation – if I had 50 grams on one side and 40 sides on the other, how many grades would I have to add to the lesser side in order to balance them? (10 grams)…this is what we are doing with equations
  + Inverse operations!! In order to isolate our variables
    - Addition and subtraction
    - Multiplication and division
  + (5 min)
* Talk about 1-step vs 2-step equations. Yesterday we looked at 1-step equations cause it only took one operation to solve for the unknown variable. Today we will look at two step equations. Ask the students what they think a two step equation is…(takes two operations to solve for the variable). (2 min)
* Practicing two-step equations on the board. Have the students write out the work and answers these problems in their notebook, but when they are done, write the answers on the smartboard in the front of the classroom. Review all examples with the students. Make sure they understand which inverse operation to use. How to isolate the variable term, etc.
  + Examples
    - 15 = 2m + 3 m = 6
    - 5 = y ÷ 3 – 9 y = 42
    - 7 = 6r – 17 r = 4
    - 25 – 13f = -14 f = 3
    - m ÷ 7 – 3 = 0 m = 21
    - 9n + 18 = 81 n = 7
    - 4x – 17 = 31 x = 12
    - v ÷ 8 – 9 = -13 v = -32
  + (15 min)
* Hand out worksheet on solving equations. Solving equations Practice Problems. Today the students will solve the problems using integer operations. Tomorrow, as a class we will translate the word problems into equations. (10 min). collect papers to finish tomorrow.

Closure:

* hand out homework due tomorrow 7/22/10 – equations chart
* finish the solving equations practice problems worksheet and then hand in to the teacher

Evaluation Procedure:

* equations chart homework due tomorrow 7/22/10

Additional Notes:

* 1-step equations homework answer key from 7/20/10
* Solving equations practice problems
* Solving equations practice problems answer key
* Equations chart homework
* Equations chart homework answer key

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Solving Equations Practice Problems

Directions: Write an equation. Then solve.

1. Bill purchased 4 pens for $8.00. Find the cost of two pens.
2. A waitress earned $73 for 6 hours of work. The total included $46 in tips. What was her hourly wage?
3. Tehira has read 110 pages of a 290-page book. She reads 20 pages each day. How many days will it take to finish?
4. Sue rode 24 miles on her bike over 4 days. She rode the same amount each day. How many miles did she ride per day?
5. During one week Bob ran a total of 50 miles. On Sunday he ran 8 miles, Monday he ran 5 miles, Tuesday he ran 7 miles, Wednesday he ran 4 miles, Thursday he ran 5 miles, and Friday he ran 3 miles. How many miles did Bob run on Saturday?

Name: Answer Key

Date: 7/21/10

Solving Equations Practice Problems

Directions: Write an equation. Then solve.

1. Bill purchased 4 pens for $8.00. Find the cost of two pens.

4x = 8 x = 2

So, 2 pens cost $4.

1. A waitress earned $70 for 6 hours of work. The total included $40 in tips. What was her hourly wage?

$70 = $40 + 6x x = $5.00 per hour

1. Tehira has read 110 pages of a 290-page book. She reads 20 pages each day. How many days will it take to finish?

110 + 20P = 290 P = 9 days

1. Sue rode 24 miles on her bike over 4 days. She rode the same amount each day. How many miles did she ride per day?

24 = 4x x = 6 miles

1. During one week Bob ran a total of 50 miles. On Sunday he ran 8 miles, Monday he ran 5 miles, Tuesday he ran 7 miles, Wednesday he ran 4 miles, Thursday he ran 5 miles, and Friday he ran 3 miles. How many miles did Bob run on Saturday?

50 = 8 + 5 + 7 + 4 + 5 + 3 + x x = 18 miles on Saturday

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Due Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Equations Chart

Directions: You are given 1 and 2 step equations. In the chart, record the operations you would use to solve the problems. Make sure the steps are in the exact order that you would use to find the solution. Do not solve for the variables.

|  |  |  |
| --- | --- | --- |
| Equation | Step 1 Operation | Step 2 Operation |
| X + 6 = -2 |  |  |
| -9 + x = -5 |  |  |
| 8 = 3 + 5x |  |  |
| -7 = x + (-4) |  |  |
| 2x + (-9) = 9 |  |  |
| Y + 5 = -5 |  |  |
| 13 – x = 5 |  |  |
| 8 = 3 + x |  |  |
| -7 + 3x = 2 |  |  |
| 4x – 10 = 2 |  |  |

Name: Answers

Due Date: 7/22/10

Equations Chart

Directions: You are given 1 and 2 step equations. In the chart, record the operations you would use to solve the problems. Make sure the steps are in the exact order that you would use to find the solution. Do not solve for the variables.

|  |  |  |
| --- | --- | --- |
| Equation | Step 1 Operation | Step 2 Operation |
| X + 6 = -2 | Subtract 6 |  |
| -9 + x = -5 | Add 9 |  |
| 8 = 3 + 5x | Subtract 3 | Divide by 5 |
| -7 = x + (-4) | Add 4 |  |
| (x/2) + (-9) = 9 | Add 9 | Multiply by 2 |
| Y + 5 = -5 | Subtract 5 |  |
| 13 – x = 5 | Subtract 13 | Divide by -1 |
| 8 = 3 + x | Subtract 3 |  |
| -7 + 3x = 2 | Add 7 | Divide by 3 |
| 4x – 10 = 2 | Add 10 | Divide by 4 |

Name: Abby Simons Date: 7/22/10

Lesson Title: Equations and Word Problems Unit Title: Week 5

Grade Level: 7th

Objectives:

* Students will be able to solve 1-step and 2-step equations
* Students will be able to translate word problems into equations.

Set Induction:

* Take attendance
* Hand back any papers
* Have students take out their homework logs and fill in tonight’s homework. I will come around and sign them.
* Write the following 2-step equations on the board. The students will copy them and solve for the variables in their notebooks. We will review the steps and answers when the students are done.
  + 3 – x = -2 x = 5
  + 15 + 3x = 18 x = 1
  + 5 = 9x – 13 x = 2
* (5 min)

Content Outline and Learning Activities:

* Students will take out their homework from last night – equations chart homework. We will discuss which operations were used with the class. Students will hand in homework when completed. (5 min)
* Students will now go over how to translate word problems into equations. Handout notes sheet with steps for students and with examples – Translating Word Problems into Equations. We will do examples 1 and 2 together. (15 min)
* Now students will redo the Solving Equations practice problems on a separate piece of paper. This time they will make the equations and identify the variables, etc, to solve the problems. Students must use the techniques we just learned and must show step by step how to solve the problems. (15 min)

Closure:

* Hand out homework due tomorrow 7/23/10 – Review of equations homework. Tell students they must write out each of the 7 steps for each word problem. Will not get credit for the assignment if I don’t see all the steps. (aka must redo in homework hut or yo)
* Go around classroom and ask students to state each step of our translating word problems into equations process.
* (5 min)

Evaluation Procedure:

* Review of equations homework due 7/23/10

Additional Notes:

* Equations chart homework from 7/21/10
* Translating Word Problems into Equations sheet
* Translating Word Problems into Equations answer key
* Solving Equations Practice problems (collected them yesterday..resubmit to students today)
* Solving equations practice problems answer key (with each step)
* Review of equations homework
* Review of equations homework answers

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Translating Word Problems into Equations

Procedure:

1. Read the problem carefully and figure out what it is asking you to find.
2. Assign a variable to the quantity you are trying to find.
3. Write down what the variable represents.
4. Re-read the problem and write an equation for the quantities given in the problem.
5. Solve the equation.
6. Answer the question in the problem.
7. Check your solution.

When solving these problems, follow these steps…

1. Ask yourself, “What am I trying to find?”
2. Assign a variable for the number
3. Write what the variable represents
4. Write an equation
5. Solve the equation
6. Answer the question in the problem
7. Check your answer
   1. See if both sides of the equal sign are equal by “plugging in” your answer.

Example 1 – When 6 is added to 4 times a number, the result is 50. Find the number.

1. What are we trying to find?
2. Assign a variable for the number.
3. Write down what the variable represents.
4. Write an equation
5. Solve the equation
6. Answer the question in the problem
7. Check your answer

Example 2 – Jose has a board that is 44 inches long. He wishes to cut it into 2 pieces so that one piece will be 6 inches longer than the other. How long should the shorter be?

1. What are we trying to find?
2. Assign a variable for the number
3. Write down what the variable represents
4. Write an equation
5. Solve the equation
6. Answer the question in the problem
7. Check your answer

Name: ANSWERS

Date: 7/22/10

Translating Word Problems into Equations (**hand write in each step**)

Procedure:

1. Read the problem carefully and figure out what it is asking you to find.
2. Assign a variable to the quantity you are trying to find.
3. Write down what the variable represents.
4. Re-read the problem and write an equation for the quantities given in the problem.
5. Solve the equation.
6. Answer the question in the problem.
7. Check your solution.

When solving these problems, follow these steps…

1. Ask yourself, “What am I trying to find?”
2. Assign a variable for the number
3. Write what the variable represents
4. Write an equation
5. Solve the equation
6. Answer the question in the problem
7. Check your answer
   1. See if both sides of the equal sign are equal by “plugging in” your answer.

Example 1 – When 6 is added to 4 times a number, the result is 50. Find the number.

1. What are we trying to find?
2. Assign a variable for the number.
3. Write down what the variable represents.
4. Write an equation
5. Solve the equation
6. Answer the question in the problem
7. Check your answer

Example 2 – Jose has a board that is 44 inches long. He wishes to cut it into 2 pieces so that one piece will be 6 inches longer than the other. How long should the shorter be?

1. What are we trying to find?
2. Assign a variable for the number
3. Write down what the variable represents
4. Write an equation
5. Solve the equation
6. Answer the question in the problem
7. Check your answer

Name: ANSWERS

Date: 7/22/10

Solving Equations Practice Problems (**hand write in answers and each step**)

Directions: Write an equation. Then solve.

1. Bill purchased 4 pens for $8.00. Find the cost of two pens.
2. A waitress earned $73 for 6 hours of work. The total included $46 in tips. What was her hourly wage?
3. Tehira has read 110 pages of a 290-page book. She reads 20 pages each day. How many days will it take to finish?
4. Sue rode 24 miles on her bike over 4 days. She rode the same amount each day. How many miles did she ride per day?
5. During one week Bob ran a total of 50 miles. On Sunday he ran 8 miles, Monday he ran 5 miles, Tuesday he ran 7 miles, Wednesday he ran 4 miles, Thursday he ran 5 miles, and Friday he ran 3 miles. How many miles did Bob run on Saturday?

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Due Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Review of Equations Homework (MORE ON BACK!)

Directions: Solve the following problems. SHOW ALL WORK.

1. 2 + x = -6
2. 6 + 3x = 24
3. 27 – x = 19
4. 30 – 2x = 20

Directions: Write an equation. Then solve for the variable to find the solution to the question. YOU MUST WRITE OUT ALL OF THE 7 STEPS THAT WE DID IN CLASS TODAY FOR EACH QUESTION!

1. Ben bought 5 books for a total of $40. If each book cost the same amount, how much did he spend per book?
2. John wanted to build a tower that was 10 feet tall. He had two pieces of wood that were 3 feet each. How much should he cut another piece of wood to reach 10 feet?
3. Billy had 2 benches that hold 3 people each and an assortment of 1-person foldable chairs. If 10 guests are coming over, how many foldable chairs does he need?

Name: Answer Key

Due Date: 7/23/10

Review of Equations Homework

THERE IS A BACK! (**hand write in all 7 steps**)

Directions: Solve the following problems. SHOW ALL WORK.

1. 2 + x = -6

X = -8

1. 6 + 3x = 24

3x = 18

X = 6

1. 27 – x = 19

-x = -8

X = 8

1. 30 – 2x = 20

-2x = -10

X = 5

Directions: Write an equation. Then solve for the variable to find the solution to the question. WRITE ALL 7 STEPS

1. Ben bought 5 books for a total of $40. If each book cost the same amount, how much did he spend per book?

40 = 5x… x =8. He spent $8 per book

1. John wanted to build a tower that was 10 feet tall. He had two pieces of wood that were 3 feet each. How much should he cut another piece of wood to reach 10 feet?

2\*3 + x = 10

6 + x = 10

X = 4… he should cut another piece of wood that is 4 feet long

1. Billy had 3 benches that hold 3 people each and an assortment of 1-person foldable chairs. If 13 guests are coming over, how many foldable chairs does he need?

3\*3 + x = 13

9 + x = 13

X = 4… he needs 4 foldable chairs

Name: Abby Simons Date: 7/23/10

Lesson Title: Wrap up of Equations Unit Title: Week 5

Grade Level: 7th

Objectives:

* Students will be able to translate word problems into equations

Set Induction:

* Take attendance
* Hand back any papers
* No homework tonight, it’s Friday!
* (2 min)

Content Outline and Learning Activities:

* Students will take out their homework from last night (7/22/10) – review of equations homework and solving equations practice problems. When completed I will collect the review of equations worksheet. Students will hold onto the solving equations practice problems sheet for later in class. (8 min)
* Students will now go over how to translate word problems into equations. Handout notes sheet with steps for students and with examples – Translating Word Problems into Equations. We will do examples 1 and 2 together. (10 min)
* Now students will redo the solving equations practice problems by using the techniques we used. They must re-solve the questions through the 7 steps to write an equation. They will complete on a separate piece of paper. Start of doing problems as a class (15 min)
* For the remaining time in class, the students will write a paragraph on a separate piece of paper titled – How can I use math in my life? – to wrap up what we have done this summer before the Heptathlon next week. (math means to me…) Tell students – I want to see their opinions on how their math course this summer has been useful to their life, how they think they can use this knowledge outside of school, etc. They must hand in before they leave. (10 min)

Closure:

* No homework tonight, have a good weekend
* Students will finish up their paragraphs about the importance of mathematics in their lives. Hand in sheets before they leave.

Evaluation Procedure:

* No homework, it’s Friday

Additional Notes:

* Review of equations homework answers from 7/22/10
* Solving equations practice problems answers
* Translating word problems into equations notes
* Translating word problems into equations notes answer sheet

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Translating Word Problems into Equations

Procedure:

1. Read the problem carefully and figure out what it is asking you to find.
2. Assign a variable to the quantity you are trying to find.
3. Write down what the variable represents.
4. Re-read the problem and write an equation for the quantities given in the problem.
5. Solve the equation.
6. Answer the question in the problem.
7. Check your solution.

When solving these problems, follow these steps…

1. Ask yourself, “What am I trying to find?”
2. Assign a variable for the number
3. Write what the variable represents
4. Write an equation
5. Solve the equation
6. Answer the question in the problem
7. Check your answer
   1. See if both sides of the equal sign are equal by “plugging in” your answer.

Example 1 – When 6 is added to 4 times a number, the result is 50. Find the number.

1. What are we trying to find?
2. Assign a variable for the number.
3. Write down what the variable represents.
4. Write an equation
5. Solve the equation
6. Answer the question in the problem
7. Check your answer

Example 2 – Jose has a board that is 44 inches long. He wishes to cut it into 2 pieces so that one piece will be 6 inches longer than the other. How long should the shorter be?

1. What are we trying to find?
2. Assign a variable for the number
3. Write down what the variable represents
4. Write an equation
5. Solve the equation
6. Answer the question in the problem
7. Check your answer

Name: answers

Date: 7/23/10

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Name: ANSWERS

Date: 7/23/10

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